GENETICS

A PERIODICAL RECORD OF INVESTIGATIONS
BEARING ON HEREDITY AND VARIATION

Founded in 1916

and published by

The Genetics Society of America

VOLUME 147, SEPTEMBER–DECEMBER, 1997

GENETICS VOLUME 147, SEPTEMBER–DECEMBER, 1997

EDITORIAL BOARD

ELIZABETH W. JONES, *Editor*
Carnegie Mellon University, Pittsburgh, PA

SALLY LYMAN ALLEN (1997)
University of Michigan

JAMES A. BIRCHLER (1999)
University of Missouri

DAVID BOTSTEIN (1997)
Stanford University School of Medicine

ANTHONY H. D. BROWN (1997)
CSIRO Division of Plant Industry

MARIAN CARLSON (1999)
Columbia University

JOANNE CHORY (1998)
The Salk Institute

ANDREW G. CLARK (1997)
Pennsylvania State University

THOMAS W. CLINE (1999)
University of California, Berkeley

NANCY L. CRAIG (1997)
Johns Hopkins University School of Medicine

ROWLAND H. DAVIS (1999)
University of California, Irvine

WALTER F. EANES (1997)
State University of New York

VICTORIA G. FINNERTY (1999)
Emory University

PATRICIA L. FOSTER (1998)
Boston University School of Medicine

G. BRIAN GOLDING (1997)
McMaster University

IVA GREENWALD (1999)
Columbia University

R. SCOTT HAWLEY (1997)
University of California, Davis

STEVEN HENIKOFF (1998)
Fred Hutchinson Cancer Center

ROBERT K. HERMAN (1999)
University of Minnesota

JODY HEY (1998)
Rutgers University

ALAN G. HINNEBUSCH (1997)
National Institutes of Health

ARY A. HOFFMANN (1999)
La Trobe University

RICHARD R. HUDSON (1998)
University of California, Irvine

NANCY A. JENKINS (1998)
National Cancer Institute

SUE JINKS-ROBERTSON (1998)
Emory University

MARK JOHNSTON (1997)
Washington University School of Medicine

PETER D. KEIGHTLEY (1999)
University of Edinburgh

CHRISTINE KOZAK (1999)
National Instiute of Health-NIAID

WEN-HSIUNG LI (1997)
University of Texas, Houston

JENNIFER J. LOROS (1998)
Dartmouth Medical School

TRUDY F. C. MACKAY (1999)
North Carolina State University

RUSS MAURER (1998)
Case Western Reserve University

RICHARD E. MICHOD (1999)
University of Arizona

AARON P. MITCHELL (1998)
Columbia University

KATHLEEN J. NEWTON (1998)
University of Missouri

LINDA PARTRIDGE (1999)
University College London

PATRICIA J. PUKKILA (1998)
University of North Carolina

MARK D. ROSE (1998)
Princeton University

TRUDI SCHÜPBACH (1999)
Princeton University

LILLIE L. SEARLES (1998)
University of North Carolina

RUTH G. SHAW (1999)
University of Minnesota

WILLIAM F. SHERIDAN (1998)
University of North Dakota

MICHAEL J. SIMMONS (1997)
University of Minnesota

MONTGOMERY SLATKIN (1997)
University of California, Berkeley

GERALD R. SMITH (1998)
Fred Hutchinson Cancer Center

VENKATESAN SUNDARESAN (1997)
Institute of Molecular Agrobiology

LORRAINE S. SYMINGTON (1999)
Columbia University College of Physicians and Surgeons

NAOYUKI TAKAHATA (1999)
Graduate University, Kanagawa

SIMON TAVARÉ (1999)
University of Southern California

MARCY K. UYENOYAMA (1998)
Duke University

BRUCE S. WEIR (1998)
North Carolina State University

FRED WINSTON (1997)
Harvard Medical School

CHUNG-I WU (1999)
University of Chicago

PAUL G. YOUNG (1999)
Queen's University

ZHAO-BANG ZENG (1999)
North Carolina State University

MIRIAM E. ZOLAN (1998)
Indiana University

Editorial Assistant, LEAH KAUFFMAN

Published at Baltimore, Maryland
by the GENETICS SOCIETY OF AMERICA

Pre-publication services by Tapsco, Inc.

Printed by Lancaster Press, Inc.

VOLUME CONTENTS

to Volume 147, September–December 1997

AKASHI, HIROSHI, Distinguishing the effects of mutational biases and natural selection on DNA sequence variation 1989–1991

ALBRECHT, KENNETH H. and EVA M. EICHER, DNA sequence analysis of *Sry* alleles (subgenus Mus) implicates misregulation as the cause of C57BL/6J-Y^{POS} sex reversal and defines the SRY functional unit 1267–1277

ARAKI, HITOSHI and HIDENORI TACHIDA, Bottleneck effect on evolutionary rate in the nearly neutral mutation model 907–914

ASADA, YASUHIKO, CHANGLI YUE, JIAN WU, GUANG-PING SHEN, CHARLES P. NOVOTNY and ROBERT C. ULLRICH, *Schizophyllum commune* Aα mating-type proteins, Y and Z, form complexes in all combinations *in vitro* 117–123

ATCHLEY, WILLIAM R. and JUN ZHU, Developmental quantitative genetics, conditional epigenetic variability and growth in mice 765–776

BAASIRI, RUDEINA A., XIAOHUI LU, PATRICIA S. ROWLEY, GLORIA E. TURNER and KATHERINE A. BORKOVICH, Overlapping functions for two G protein α subunits in *Neurospora crassa* 137–145

BANKS, JO ANN, The *TRANSFORMER* genes of the fern Ceratopteris simultaneously promote meristem and archegonia development and repress antheridia development in the developing gametophyte 1885–1897

BENNI, MEI LI and LENORE NEIGEBORN, Identification of a new class of negative regulators affecting sporulation-specific gene expression in yeast 1351–1366

BERNACCHI, DARIO and STEVEN D. TANKSLEY, An interspecific backcross of *Lycopersicon esculentum* × *L. hirsutum*: Linkage analysis and a QTL study of sexual compatibility factors and floral traits 861–877

BESANSKY, NORA J., TOVI LEHMANN, G. THOMAS FAHEY, DIDIER FONTENILLE, LAWRENCE E. O. BRAACK, WILLIAM A. HAWLEY and FRANK H. COLLINS, Patterns of mitochondrial variation within and between African malaria vectors, *Anopheles gambiae* and *An. arabiensis*, suggest extensive gene flow 1817–1828

BIÉMONT, C., A. TSITRONE, C. VIEIRA and C. HOOGLAND, Transposable element distribution in Drosophila 1997–1999

BOURGUET, DENIS, THOMAS LENORMAND, THOMAS GUILLEMAUD, VÉRONIQUE MARCEL, DIDIER FOURNIER and MICHEL RAYMOND, Variation of dominance of newly arisen adaptive genes 1225–1234

BRAUN, ANNE, BRUNO LEMAITRE, RENÉ LANOT, DANIEL ZACHARY and MARIE MEISTER, Drosophila immunity: Analysis of larval hemocytes by *P*-element-mediated enhancer trap 623–634

BRENNAN, KEITH, RICHARD TATESON, KAREN LEWIS and ALFONSO MARTINEZ ARIAS, A functional analysis of *notch* mutations in Drosophila 177–188

BRENNER, C. H., Symbolic kinship program 349

BRUTNELL, THOMAS P., BRUCE P. MAY and STEPHEN L. DELLAPORTA, The *Ac-st2* element of maize exhibits a positive dosage effect and epigenetic regulation 823–834

BULL, J. J., M. R. BADGETT, H. A. WICHMAN, J. P. HUELSENBECK, D. M. HILLIS, A. GULATI, C. HO and I. J. MOLINEUX, Exceptional convergent evolution in a virus 1497–1507

BURATOVICH, MICHAEL A. and PETER J. BRYANT, Enhancement of overgrowth by gene interactions in *lethal(2)giant discs* imaginal discs from *Drosophila melanogaster* 657–670

CABALLERO, ARMANDO, PETER D. KEIGHTLEY and MICHAEL TURELLI, Average dominance for polygenes: Drawbacks of regression estimates 1487–1490

CAZEMAJOR, MICHEL, CLAUDIE LANDRÉ and CATHERINE MONTCHAMP-MOREAU, The *sex-ratio* trait in *Drosophila simulans*: Genetic analysis of distortion and suppression 635–642

CHAO, LIN, THU T. TRAN and THUTRANG T. TRAN, The advantage of sex in the RNA virus ϕ6 953–959

CHARLES, JEAN-PHILIPPE, CAROL CHIHARA, SHAMIM NEJAD and LYNN M. RIDDIFORD, A cluster of cuticle protein genes of *Drosophila melanogaster* at 65A: Sequence, structure and evolution 1213–1224

CHARLESWORTH, B., C. H. LANGLEY, and P. D. SNIEGOWSKI, Transposable element distributions in Drosophila 1993–1995

CIRERA, SUSANNA and MONTSERRAT AGUADÉ, Evolutionary history of the sex-peptide (*Acp70A*) gene region in *Drosophila melanogaster* 189–197

CLARK, ANDREW G. and LEI WANG, Epistasis in measured genotypes: Drosophila *P*-element insertions 157–163

CLARK, ANDREW G. and LEI WANG, Molecular population genetics of Drosophila immune system genes 713–724

CORRE, JACQUELINE, FRANÇOIS CORNET, JOSETTE PATTE and JEAN-MICHEL LOUARN, Unraveling a region-specific hyper-recombination phenomenon: Genetic control and modalities of terminal recombination in *Escherichia coli* 979–989

COTTAREL, GUILLAUME, Mcs4, a two-component system response regulator homologue, regulates the *Schizosaccharomyces pombe* cell cycle control 1043–1051

CROW, JAMES F., Birth defects, Jimson weeds and bell curves 1–6

CROW, JAMES F., and SEYMOUR ABRAHAMSON, Seventy years ago: Mutation becomes experimental 1491–1496

CUE, DAVID and MICHAEL FEISS, Genetic evidence that recognition of *cosQ*, the signal for termination of phage λ DNA packaging, depends on the extent of head filling 7–17

DEÁK, PÉTER, MAHMOUD M. OMAR, ROBERT D. C. SAUNDERS, MARGIT PÁL, ORBÁN KOMONYI, JÁNOS SZIDONYA, PÉTER MARÓY, YONG ZHANG, MICHAEL ASHBURNER, PANAYIOTIS BENOS, CHARALAMBOS SAVAKIS, INGA SIDEN-KIAMOS, CHRISTOS LOUIS, VIACHESLAV N. BOLSHAKOV, FOTIS C. KAFATOS, ENCARNACIÓN MADUENO, JUAN MODOLELL and DAVID M. GLOVER, *P*-element insertion alleles of essential genes on the third chromosome of *Drosophila melanogaster*: Correlation of physical and cytogenetic maps in chromosomal region 86E-87F 1697–1722

DE HAAN, ANITA A., HANS P. KOELEWIJN, MARIA P. J. HUNDSCHEID and JOS M. M. VAN DAMME, The dynamics of gynodioecy in *Plantago lanceolata* L. II. Mode of action and frequencies of restorer alleles 1317–1328

DENG, HONG-WEN and MICHAEL LYNCH, Inbreeding depression and inferred deleterious-mutation parameters in Daphnia 147–155

DERKATCH, IRINA L., MICHAEL E. BRADLEY, PING ZHOU, YURY O. CHERNOFF and SUSAN W. LIEBMAN, Genetic and environmental factors affecting the *de novo* appearance of the [*PSI*$^+$] prion in *Saccharomyces cerevisiae* 507–519

DE STASIO, ELIZABETH, CATHERINE LEPHOTO, LYNN AZUMA, CHARLES HOLST, DINESH STANISLAUS and JAI UTTAM, Characterization of revertants of *unc-93* (*e1500*) in *Caenorhabditis elegans* induced by *N*-ethyl-*N*-nitrosourea 597–608

DEYOUNG, BRODY, TODD WEBER, BARBARA HASS and JO ANN BANKS, Generating autotetraploid sporophytes and their use in analyzing mutations affecting gametophyte development in the fern Ceratopteris 809–814

DILL, CARREN L., ROGER P. WISE and PATRICK S. SCHNABLE, *Rf8* and *rf** mediate unique t-*urf13*-transcript accumulation, revealing a conserved motif associated with RNA processing and restoration of pollen fertility in t-cytoplasm maize 1367–1379

DILLIN, ANDREW and JASPER RINE, Separable functions of *ORC5* in replication initiation and silencing in *Saccharomyces cerevisiae* 1053–1062

DOONER, HUGO K., and ISABEL M. MARTÍNEZ-FÉREZ, Germinal excisions of the maize transposon *Activator* do not stimulate meiotic recombination or homology-dependent repair at the *bz* locus 1923–1932

DORER, DOUGLAS R. and STEVEN HENIKOFF, Transgene repeat arrays interact with distant heterochromatin and cause silencing in *cis* and *trans* 1181–1190

DRAY, TAMMY and GREGORY B. GLOOR, Homology requirements for targeting heterologous sequences during *P*-induced gap repair in *Drosophila melanogaster* 689–699

DRESSER, MICHAEL E., DEBRA J. EWING, MICHAEL N. CONRAD, ANA M. DOMINGUEZ, ROBERT BARSTEAD, HUA JIANG and THOMAS KODADEK, *DMC1* functions in a *Saccharomyces cerevisiae* meiotic pathway that is largely independent of the *RAD51* pathway 533–544

DUNSTAN, HEATHER M., NOELLE S. GREEN-WILLMS and THOMAS D. FOX, *In vivo* analysis of *Saccharomyces cerevisiae COX2* mRNA 5′-untranslated leader functions in mitochondrial translation initiation and translational activation 87–100

EDWARDS, MICHAEL C., NANETTE LIEGEOIS, JOE HORECKA, RONALD A. DEPINHO, GEORGE F. SPRAGUE, JR., MIKE TYERS and STEPHEN J. ELLEDGE, Human *CPR* (cell cycle progression restoration) genes impart a far⁻ phenotype on yeast cells 1063–1076

EHRLICH, JASON, DAVID SANKOFF and JOSEPH H. NADEAU, Synteny conservation and chromosome rearrangements during mammalian evolution 289–296

EYRE-WALKER, ADAM, Differentiating between selection and mutation bias 1983–1987

FELDMANN, KENNETH A., DANIEL A. COURY and MICHAEL L. CHRISTIANSON, Exceptional segregation of a selectable marker (Kan^R) in Arabidopsis identifies genes important for gametophytic growth and development 1411–1422

FELDMAN, MOSHE, BAO LIU, GREGORIO SEGAL, SHAHAL ABBO, AVRAHAM A. LEVY and JUAN M. VEGA, Rapid elimination of low-copy DNA sequences in polyploid wheat: A possible mechanism for differentiation of homoeologous chromosomes 1381–1387

FITZSIMMONS, NANCY N., CRAIG MORITZ, COLIN J. LIMPUS, LISA POPE and ROBERT PRINCE, Geographic structure of mitochondrial and nuclear gene polymorphisms in Australian green turtle populations and male-biased gene flow 1843–1854

FOOTE, TRACIE, MICHAEL ROBERTS, NORI KURATA, TAKUJI SASAKI and GRAHAM MOORE, Detailed comparative mapping of cereal chromosome regions corresponding to the *Ph1* locus in wheat 801–807

FORSBURG, SUSAN L., DANIEL A. SHERMAN, SABINE OTTILIE, J. RANDY YASUDA and JEFFREY A. HODSON, Mutational analysis of Cdc19p, a *Schizosaccharomyces pombe* MCM protein 1025–1041

FU, YUN-XIN, Statistical tests of neutrality of mutations against population growth, hitchhiking and background selection 915–925

GIBSON, GREG and SYLVIE VAN HELDEN, Is function of the Drosophila homeotic gene *Ultrabithorax* canalized? 1155–1168

GOLUBOVSKAYA, INNA, NADEZHDA AVALKINA and WILLIAM F. SHERIDAN, New insights into the role of maize *ameiotic1* locus 1339–1350

GOODISMAN, MICHAEL A. D. and MARJORIE A. ASMUSSEN, Cytonuclear theory for haplodiploid species and *X*-linked genes. I. Hardy-Weinberg dynamics and continent-island, hybrid zone models 321–338

GUETSOVA, MARIA L., KARINE LECOQ and BERTRAND DAIGNAN-FORNIER, The isolation and characterization of *Saccharomyces cerevisiae* mutants that constitutively express purine biosynthetic genes 383–397

HARTENSTEIN, KIRSTEN, PRADIP SINHA, ARATI MISHRA, HEIDE SCHENKEL, ISTVAN TÖRÖK and BERNARD M. MECHLER, The *congested-like tracheae* gene of *Drosophila melanogaster* encodes a member of the mitochondrial carrier family required for gas-filling of the tracheal system and expansion of the wings after eclosion 1755–1768

HOESCHELE, I., P. UIMARI, F. E. GRIGNOLA, Q. ZHANG and K. M. GAGE, Advances in statistical methods to map quantitative trait loci in outbred populations 1445–1457

HOLBECK, SUSAN L. and JEFFREY N. STRATHERN, A role for *REV3* in mutagenesis during double-strand break repair in *Saccharomyces cerevisiae* 1017–1024

HOLLINGSWORTH, NANCY M. and LISA PONTE, Genetic interactions between *HOP1*, *RED1* and *MEK1* suggest that *MEK1* regulates assembly of axial element components during meiosis in the yeast *Saccharomyces cerevisiae* 33–42

HOLLOCHER, HOPE, CHAU-TI TING, MAO-LIEN WU and CHUNG-I WU, Incipient speciation by sexual isolation in *Drosophila melanogaster:* Extensive genetic divergence without reinforcement 1191–1201

HOSPITAL, FRÉDÉRIC and ALAIN CHARCOSSET, Marker-assisted introgression of quantitative trait loci 1469–1485

HOTZ, HANSJÜRG, THOMAS UZZELL and LESZEK BERGER, Linkage groups of protein-coding genes in western Palearctic water frogs reveal extensive evolutionary conservation 255–270

HUAI, HAIYING and R. C. WOODRUFF, Clusters of identical new mutations can account for the "overdispersed" molecular clock 339–348

INNAN, HIDEKI and FUMIO TAJIMA, The amounts of nucleotide variation within the between allelic classes and the reconstruction of the common ancestral sequence in a population 1431–1444

INOUYE, CARLA, NAMRITA DHILLON, TIM DURFEE, PATRICIA C. ZAMBRYSKI and JEREMY THORNER, Mutational analysis of *STE5* in the yeast *Saccharomyces cerevisiae*: Application of a differential interaction trap assay for examining protein-protein interactions 479–492

JACK, JOSEPH and GUY MYETTE, The genes *raw* and *ribbon* are required for proper shape of tubular epithelial tissues in Drosophila 243–253

JIANG, C.-Z., C.-N. YEN, K. CRONIN, D. MITCHELL and A. B. BRITT, UV- and gamma-radiation sensitive mutants of *Arabidopsis thaliana* 1401–1409

KAGAMI, MITSUHIRO, AKIO TOH-E and YASUSHI MATSUI, *SR09*, a multicopy suppressor of the bud growth defect in the *Saccharomyces cerevisiae rho3*-deficient cells, shows strong genetic interactions with tropomyosin genes, suggesting its role in organization of the actin cytoskeleton 1003–1016

KATZ, LAURA A. and RICHARD G. HARRISON, Balancing selection on electrophoretic variation of phosphoglucose isomerase in two species of field cricket: *Gryllus veletis* and *G. pennsylvanicus* 609–621

KE, NING and DANIEL F. VOYTAS, High frequency cDNA recombination of the saccharomyces retrotransposon Ty5: The LTR mediates formation of tandem elements 545–556

KLEIN, HANNAH L., RDH54, a *RAD54* homologue in *Saccharomyces cerevisiae*, is required for mitotic diploid-specific recombination and repair and for meiosis 1533–1543

KOLMAN, CONNIE J. and ELDREDGE BERMINGHAM, Mitochondrial and nuclear DNA diversity in the Chocó and Chibcha Amerinds of Panamá 1289–1302

KOPSKI, KRISTEN M. and TIM C. HUFFAKER, Suppressors of the *ndc10-2* mutation: A role for the ubiquitin system in *Saccharomyces cerevisiae* kinetochore function 409–420

KRÜGER, JULIA, CHRISTIAN AICHINGER, REGINE KAHMANN and MICHAEL BÖLKER, A MADS-Box homologue in *Ustilago maydis* regulates the expression of pheromone-inducible genes but is nonessential 1643–1652

LAI, ZHI-CHUN, MICHAEL FETCHKO and YING LI, Repression of Drosophila photoreceptor cell fate through cooperative action of two transcriptional repressors Yan and Tramtrack 1131–1137

LAIR, KEVIN P., WILLIAM E. BRADSHAW and CHRISTINA M. HOLZAPFEL, Evolutionary divergence of the genetic architecture underlying photoperiodism in the pitcher-plant mosquito, *Wyeomyia smithii* 1873–1883

LANGE, KENNETH, An approximate model of polygenic inheritance 1423–1430

LAURIE, CATHY C., The weaker sex is heterogametic: 75 years of HALDANE'S rule 937–951

LENORMAND, THOMAS, FABIENNE FEL-CLAIR, KATERINA MANOLAKOU, PAUL ALIBERT and JANICE BRITTON-DAVIDIAN, Chromosomal transmission bias in laboratory hybrids between wild strains of the two European subspecies of house mice 1279–1287

LEWONTIN, RICHARD C., DOBZHANSKY'S *Genetics and the Origin of Species*: Is it still relevant? 351–355

LIN, PAUL, THOMAS S. CARDILLO, LYNN M. RICHARD, GEORGE B. SEGEL and FRED SHERMAN, Analysis of mutationally altered forms of the Cct6 subunit of the chaperonin from *Saccharomyces cerevisiae* 1609–1633

LOUBRADOU, GABRIEL, JOEL BÉGUERET and BÉATRICE TURCQ, A mutation in an *HSP90* gene affects the sexual cycle and suppresses vegetative incompatibility in the fungus *Podospora anserina* 581–588

LUSSIER, MARC, ANN-MARIE WHITE, JANE SHERATON, TIZIANO DI PAOLO, JULIE TREADWELL, SUSAN B. SOUTHARD, CRAIG I. HORENSTEIN, JOAN CHEN-WEINER, ARTHUR F. J. RAM, JOHAN C. KAPTEYN, TERRY W. ROEMER, DAHN H. VO, DANA C. BONDOC, JOHN HALL, WU WEI ZHONG, ANNE-MARIE SDICU, JULIAN DAVIES, FRANS M. KLIS, PHILLIPS W. ROBBINS and HOWARD BUSSEY, Large scale identification of genes involved in cell surface biosynthesis and architecture in *Saccharomyces cerevisiae* 435–450

LYMAN, LAURA M., KYLE COPPS, LUCA RASTELLI, RICHARD L. KELLEY and MITZI I. KURODA, Drosophila male-specific lethal-2 protein: Structure/function analysis and dependence on MSL-1 for chromosome association 1743–1753

MACK, JUDITH A., RONALD D. SMITH and DAVID T. KUHN, Mobile element *297* in the *Abd-B* gene of *Drosophila melanogaster*, not *Delta 88*, is responsible for the *tuh-3* mutation 679–688

MARTIN-MORRIS, LINDA E., AMY K. CSINK, DOUGLAS R. DORER, PAUL B. TALBERT and STEVEN HENIKOFF, Heterochromatic *trans*-inactivation of Drosophila *white* transgenes 671–677

MATHERN, JULIE and SARAH HAKE, *Mu* element-generated gene conversions in maize attenuate the dominant knotted phenotype 305–314

MCDONALD, JOHN P., ARTHUR S. LEVINE and ROGER WOODGATE, The *Saccharomyces cerevisiae RAD30* gene, a homologue of *Escherichia coli dinB* and *umuC*, is DNA damage inducible and functions in a novel error-free postreplication repair mechanism 1557–1568

MCINTYRE, LAUREN M., and B. S. WEIR, Hardy-Weinberg testing for continuous data 1965–1975

MILLER, ELIZABETH M., HEATHER L. HOUGH, JENNIFER W. CHO and JAC A. NICKOLOFF, Mismatch repair by efficient nick-directed, and less efficient mismatch-specific, mechanisms in homologous recombination intermediates in Chinese hamster ovary cells 743–753

MILLER, LOREN M. and ANNE R. KAPUSCINSKI, Historical analysis of genetic variation reveals low effective population size in a northern pike (*Esox lucius*) population 1249–1258

MIR, BASHIR, SHARADA IYER, MANI RAMASWAMI and K. S. KRISHNAN, A genetic and mosaic analysis of a locus involved in the anesthesia response of *Drosophila melanogaster* 701–712

MISAWA, KAZUHARU, and FUMIO TAJIMA, Estimation of the amount of DNA polymorphism when the neutral mutation rate varies among sites 1959–1964

MITENKO, NANCY L., JAMES R. EISNER, JOHN R. SWISTON and PAUL E. MAINS, A limited number of *Caenorhabditis elegans* genes are readily mutable to dominant, temperature-sensitive maternal-effect embryonic lethality 1665–1674

MONDÉSERT, G., D. J. CLARKE and S. I. REED, Identification of genes controlling growth polarity in the budding yeast *Saccharomyces cerevisiae*: A possible role of *N*-glycosylation and involvement of the exocyst complex 421–434

MORROW, DWIGHT M., CARLA CONNELLY and PHILIP HIETER, "Break copy" duplication: A model for chromosome fragment formation in *Saccharomyces cerevisiae* 371–382

MUNTÉ, AGUSTÍ, MONTSERRAT AGUADÉ and CARMEN SEGARRA, Divergence of the *yellow* gene between *Drosophila melanogaster* and *D. subobscura:* recombination rate, codon bias and synonymous substitutions 165–175

NACHMAN, MICHAEL W., Patterns of DNA variability at *X*-linked loci in *Mus domesticus* 1303–1316

NADEAU, JOSEPH H. and DAVID SANKOFF, Comparable rates of gene loss and functional divergence after genome duplications early in vertebrate evolution 1259–1266

NAP, JAN-PETER, ANTHONY J. CONNER, LUDMILA MLYNÁROVÁ, WILLEM J. STIEKEMA and RITSERT C. JANSEN, Dissection of a synthesized quantitative trait to characterize transgene interactions 315–320

NAVARRO, ARCADIO and ALFREDO RUIZ, On the fertility effects of pericentric inversions ... 931–933

NELSON, HEIDI B., ROBERT G. HEIMAN, CLARE BOLDUC, GAE E. KOVALICK, PENN WHITLEY, MICHAEL STERN and KATHY BECKINGHAM, Calmodulin point mutations affect Drosophila development and behavior 1783–1798

NELSON, KIMBERLYN, FU-SHENG WANG, E. FIDELMA BOYD and ROBERT K. SELANDER, Size and sequence polymorphism in the isocitrate dehydrogenase kinase/phosphatase gene (*aceK*) and flanking regions in *Salmonella enterica* and *Escherichia coli* 1509–1520

NESTORAS, KATERINA, HELENA LEE and JYM MOHLER, Role of *knot* (*kn*) in wing patterning in Drosophila 1203–1212

NIELSEN, RASMUS, A likelihood approach to populations samples of microsatellite alleles 349

NOGAMI, SATORU, YOSHINORI SATOW, YOSHIKAZU OHYA and YASUHIRO ANRAKU, Probing novel elements for protein splicing in the yeast Vma1 protozyme: A study of replacement mutagenesis and intragenic suppression 73–85

OKAGAKI, RON J. and CLIFFORD F. WEIL, Analysis of recombination sites within the maize *waxy* locus 815–821

OLSON, MATTHEW S., Bayesian procedures for discriminating among hypotheses with discrete distributions: Inheritance in the tetraploid *Astilbe biternata* 1933–1942

ØSTERÅS, MAGNE, SHELLEY A. P. O'BRIEN and TURLOUGH M. FINAN, Genetic analysis of mutations affecting *pckA* regulation in *Rhizobium* (*Sinorhizobium*) *meliloti* 1521–1531

OTTO, SARAH PERIN and NICK H. BARTON, The evolution of recombination: Removing the limits to natural selection 879–906

OTT, JURG and DANIEL RABINOWITZ, The effect of marker heterozygosity on the power to detect linkage disequilibrium 927–930

PAETKAU, DAVID, LISETTE P. WAITS, PETER L. CLARKSON, LANCE CRAIGHEAD and CURTIS STROBECK, An empirical evaluation of genetic distance statistics using microsatellite data from bear (Ursidae) populations 1943–1957

PERKINS, DAVID D., BRIAN S. MARGOLIN, ERIC U. SELKER and S. D. HAEDO, Occurrence of repeat induced point mutation in long segmental duplications of Neurospora 125–136

PETERSON, PETER A., A modified autonomous *En* transposon in maize (*Zea mays* L.) elicits a differential response of reporter alleles 1329–1338

PIRUAT, JOSÉ I., SEBASTIÁN CHÁVEZ and ANDRÉS AGUILERA, The yeast *HRS1* gene is involved in positive and negative regulation of transcription and shows genetic characteristics similar to *SIN4* and *GAL11* 1585–1594

PÖGGELER, STEFANIE, SIEGFRIED RISCH, ULRICH KÜCK and HEINZ D. OSIEWACZ, Mating-type genes from the homothallic fungus *Sordaria macrospora* are functionally expressed in a heterothallic ascomycete 567–580

PRESGRAVES, DAVEN C. EMILY SEVERANCE and GERALD S. WILKINSON, Sex chromosome meiotic drive in stalk-eyed flies 1169–1180

PRICE, JAMES V., EDWARD D. SAVENYE, DAVID LUM and ASHTON BREITKREUTZ, Dominant enhancers of *Egfr* in *Drosophila melanogaster:* Genetic links between the *notch* and *Egfr* signaling pathways 1139–1153

PRITCHARD, JONATHAN K. and STEPHEN W. SCHAEFFER, Polymorphism and divergence at a Drosophila pseudogene locus 199–208

REDDY, MANJULA and J. GOWRISHANKAR, A genetic strategy to demonstrate the occurrence of spontaneous mutations in nondividing cells within colonies of *Escherichia coli* 991–1001

RIKKE, BRAD A., DABNEY K. JOHNSON and THOMAS E. JOHNSON, Murine albino-deletion complex: High-resolution microsatellite map and genetically anchored YAC framework map 787–799

ROBERG, KEVIN J., STEPHEN BICKEL, NEIL ROWLEY and CHRIS A. KAISER, Control of amino acid permease sorting in the late secretory pathway of *Saccharomyces cerevisiae* by *SEC13, LST4, LST7* and *LST8* 1569–1584

ROBERTS, SHANNON M. and FRED WINSTON, Essential functional interactions of SAGA, a *Saccharomyces cerevisiae* complex of Spt, Ada, and Gcn5 proteins, with the Snf/Swi and Srb/mediator complexes 451–465

ROSS, KENNETH G., MICHAEL J. B. KRIEGER, D. DEWAYNE SHOEMAKER, EDWARD L. VARGO and LAURENT KELLER, Hierarchical analysis of genetic structure in native fire ant populations: Results from three classes of molecular markers 643–655

RUSCHE, M. LOSOFF, H. LLOYD MOGENSEN, LIANG SHI, PAUL KEIM, MIREILLE ROUGIER, ANNIE CHABOUD and CHRISTIAN DUMAS, B chromosome behavior in maize pollen as determined by a molecular probe 1915–1921

SÁNCHEZ, LUCAS and PEDRO SANTAMARIA, Reproductive isolation and morphogenetic evolution in Drosophila analyzed by breakage of ethological barriers 231–242

SALZBERG, ADI, SERGEI N. PROKOPENKO, YUCHUN HE, PETER TSAI, MARGIT PÁL, PÉTER MARÓY, DAVID M. GLOVER, PÉTER DEÁK and HUGO J. BELLEN, *P*-element insertion alleles of essential genes on the third chromosome of *Drosophila melanogaster:* Mutations affecting embryonic PNS development 1723–1741

SANDROCK, TANYA M., JOHANNA L. O'DELL and ALISON E. M. ADAMS, Allele-specific suppression by formation of new protein-protein interactions in yeast 1635–1642

SAWITZKE, JAMES A. and FRANKLIN W. STAHL, Roles for λ Orf and *Escherichia coli* RecO, RecR and RecF in λ recombination 357–369

SCHIERUP, MIKKEL H., XAVIER VEKEMANS and FREDDY B. CHRISTIANSEN, Evolutionary dynamics of sporophytic self-incompatibility alleles in plants 835–846

SCHMIDT, R., M. HEDIGER, S. ROTH, R. NÖTHIGER and A. DÜBENDORFER, The *Y*-chromosomal and autosomal male-determining *M* factors of *Musca domestica* are equivalent 271–280

SCHRICK, KATHRIN, BARBARA GARVIK and LELAND H. HARTWELL, Mating in *Saccharomyces cerevisiae:* The role of the pheromone signal transduction pathway in the chemotropic response to pheromone 19–32

SCHUURS, THEO A., EVELINE A. M. SCHAEFFER and JOSEPH G. H. WESSELS, Homology-dependent silencing of the *SC3* gene in *Schizophyllum commune* 589–596

SCRABLE, HEIDI and PETER J. STAMBROOK, Activation of the *lac* repressor in the transgenic mouse 297–304

SELIGMAN, LENNY M., KATHRYN M. STEPHENS, JEREMIAH H. SAVAGE and RAYMOND J. MONNAT, JR., Genetic analysis of the *Chlamydomonas reinhardtii* I-*Cre*I mobile intron homing system in *Escherichia coli* 1653–1664

SHERRY, STEPHEN T., HENRY C. HARPENDING, MARK A. BATZER and MARK STONEKING, *Alu* evolution in human populations: Using the coalescent to estimate effective population size 1977–1982

SHERWOOD, PETER W. and MARIAN CARLSON, Mutations in *GSF1* and *GSF2* alter glucose signaling in *Saccharomyces cerevisiae* 557–566

SHINOHARA, MIKI, EMI SHITA-YAMAGUCHI, JEAN-MARIE BUERSTEDDE, HIDEO SHINAGAWA, HIDEYUKI OGAWA and AKIRA SHINOHARA, Characterization of the roles of the *Saccharomyces cerevisiae RAD54* gene and a homologue of *RAD54, RDH54/TID1,* in mitosis and meiosis 1545–1556

SIGRIST, CHRISTIAN J. A. and VINCENZO PIRROTTA, Chromatin insulator elements block the silencing of a target gene by the Drosophila polycomb response element (PRE) but allow *trans* interactions between PREs on different chromosomes 209–221

SLATKIN, MONTGOMERY, and BRUCE RANNALA, The sampling distribution of disease-associated alleles 1855–1861

SPENCER, HAMISH G., Mutation-selection balance under genomic imprinting at an autosomal locus 281–287

STAHL, MARY M., LYNN THOMASON, ANTHONY R. POTEETE, TRUDEE TARKOWSKI, ANDREI KUZIMINOV and FRANKLIN W. STAHL, Annealing *vs.* invasion in phage λ recombination 961–977

STANDIFORD, DAVID M., MARY BETH DAVIS, WEITAO SUN and CHARLES P. EMERSON, JR., Splice-junction elements and intronic sequences regulate alternative splicing of the Drosophila myosin heavy chain gene transcript 725–741

SUN, ANDREW Y. and ERIC J. LAMBIE, *gon-2,* a gene required for gonadogenesis in *Caenorhabditis elegans* 1077–1089

SUTTON, ANN and RICHARD FREIMAN, The Cak1p protein kinase is required at G_1/S and G_2/M in the budding yeast cell cycle 57–71

TANAKA, MARK M., XIU-MEI LIANG, YASMINE H. M. GRAY and JOHN A. SVED, The accumulation of *P*-element-induced recombinants in the germline of male *Drosophila melanogaster* ... 1769–1782

TAX, FRANS E., JAMES H. THOMAS, EDWIN L. FERGUSON and H. ROBERT HORVITZ, Identification and characterization of genes that interact with *lin-12* in *Caenorhabditis elegans* 1675–1695

TERAUCHI, RYOHEI, TORU TERACHI and NAOHIKO T. MIYASHITA, DNA polymorphism at the *Pgi* locus of a wild yam, *Dioscorea tokoro* 1899–1914

TURELLI, MICHAEL, and DAVID J. BEGUN, HALDANE's rule and *X*-chromosome size in Drosophila 1799–1815

UEMURA, HIROSHI, MIHO KOSHIO, YOKO INOUE, M. CECILIA LOPEZ, and HENRY V. BAKER, The role of Gcr1p in the transcriptional activation of glycolytic genes in yeast *Saccharomyces cerevisiae* 521–532

URUSHIYAMA, SEIICHI, TOKIO TANI and YASUMI OHSHIMA, The *prp1*$^+$ gene required for pre-mRNA splicing in *Schizosaccharomyces pombe* encodes a protein that contains TPR motifs and is similar to Prp6p of budding yeast 101–115

UYENOYAMA, MARCY K., Genealogical structure among alleles regulating self-incompatibility in natural populations of flowering plants 1389–1400

VARGA, LÁSZLÓ, GYULA SZABÓ, ARIEL DARVASI, GÉZA MÜLLER, MIKLÓS SASS and MORRIS SOLLER, Inheritance and mapping of *Compact* (*Cmpt*), a new mutation causing hypermuscularity in mice 755–764

VASICEK, THOMAS J., LI ZENG, X-J. GUAN, TONG ZHANG, FRANK COSTANTINI and SHIRLEY M. TILGHMAN, Two dominant mutations in the mouse *Fused* gene are the result of transposon insertions 777–786

VIEIRA, JORGE, CRISTINA P. VIEIRA, DANIEL L. HARTL and ELENA R. LOZOVSKAYA, Discordant rates of chromosome evolution in the *Drosophila virilis* species group 223–230

VILLELLA, ADRIANA, DONALD A. GAILEY, BARBRA BERWALD, SAIYOU OHSHIMA, PHILLIP T. BARNES and JEFFREY C. HALL, Extended reproductive roles in the *fruitless* gene in *Drosophila melanogaster* revealed by behavioral analysis of new *fru* mutants 1107–1130

VLACHOU, DINA, MARY KONSOLAKI, PETER P. TOLIAS, FOTIS C. KAFATOS and KATIA KOMITOPOULOU, The autosomal chorion locus of the medfly *Ceratitis capitata*. I. Conserved synteny, amplification and tissue specificity but sequence divergence and altered temporal regulation 1829–1842

WADE, MICHAEL J., NORMAN A. JOHNSON, RACHEL JONES, VERA SIGUEL and MICHAEL MCNAUGHTON, Genetic variation segregating in natural populations of *Tribolium castaneum* affecting traits observed in hybrids with *T. freemani* 1235–1247

WANG, RONG LIN, JOHN WAKELEY and JODY HEY, Gene flow and natural selection in the origin of *Drosophila pseudoobscura* and close relatives 1091–1106

WANG, TONGTONG, and ANTHONY BRETSCHER, Mutations synthetically lethal with *tpm1*Δ lie in genes involved in morphogenesis 1595–1607

WARD, TODD J., RODNEY L. HONEYCUTT and JAMES N. DERR, Nucleotide sequence evolution at the κ-casein locus: Evidence for positive selection within the family Bovidae 1863–1872

WEBB, GENE C., MARLOES HOEDT, LYNN J. POOLE and ELIZABETH W. JONES, Genetic interactions between a *pep7* mutation and the *PEP12* and *VPS45* genes: Evidence for a novel SNARE component in transport between the *Saccharomyces cerevisiae* Golgi complex and endosome 467–478

WHITE, WILLIAM H. and DOUGLAS I. JOHNSON, Characterization of synthetic-lethal mutants reveals a role for the *Saccharomyces cerevisiae* guanine-nucleotide exchange factor Cdc24p in vacuole function and Na^+ tolerance 43–55

WIUF, CARSTEN and JOTUN HEIN, On the number of ancestors to a DNA sequence 1459–1468

WU, XIAOHUA, CHERRY WU and JAMES E. HABER, Rules of donor preference in Saccharomyces mating-type gene switching revealed by a competition assay involving two types of recombination 399–407

ZABALA, GRACIA, SUSAN GABAY-LAUGHNAN and JOHN R. LAUGHNAN, The nuclear gene *Rf3* affects the expression of the mitochondrial chimeric sequence R implicated in S-type male sterility in maize 847–860

ZENG, XIAO, STEPHEN J. DEMINOFF and GEORGE M. SANTANGELO, Specialized Rap1p/Gcr1p transcriptional activation through Gcr1p DNA contacts requires Gcr2p, as does hyperphosphorylation of Gcr1p 493–505